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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,449	04/19/2001	Scott Elliot Axelrod	YOR920000210US2	2286

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Ryan, Mason & Lewis, LLP  
Suite 205  
1300 Post Road  
Fairfield, CT 06430

EXAMINER
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STEVENS, THOMAS H

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/838,449		AXELROD ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Thomas H. Stevens		2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 and 26-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-23, 46-50, 55 and 60 is/are allowed.
- 6) ☒ Claim(s) 1, 24, 51, 52, 53 and 56-58 is/are rejected.
- 7) ☒ Claim(s) 2-14, 26-45, 54 and 59 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-24, 26-60 were examined.
2. Claim 25 is cancelled.
3. Claims 2-14, 26-45, 54, 59 were objected.
4. Claims 1, 24, 51, 52, 53, 56-58 rejected.

### ***Non-Final Action (3<sup>rd</sup> Office Action)***

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Giustiniani et al. (US Patent 5,230,037) (hereafter Giustiniani). Giustiniani discloses a method and a system for synthesizing speech from unrestricted text, based on the principle of associating a written string of text with a sequence of speech features vectors that most probably model the corresponding speech utterance. The synthesizer is based on the interaction between two different Ergodic Hidden Markov Models: an acoustic model reflecting the constraints on the acoustic arrangement of speech, and a phonetic model interfacing phonemic transcription to the speech features representation (abstract).

Claim 1. A method comprising the steps of: creating an evaluation model ("speech models"; column 1, lines 43-49) from at least one evaluation phone; creating a synthesizer model from at least one synthesizer phone (column 3, lines 1-4); and determining a matrix (column 3, lines 55-58) from the evaluation and synthesizer model (column 6, lines 15-20) said matrix configured for speech recognition (title).

Claim 51. An apparatus comprising: a memory that stores computer-readable code; and a processor operatively coupled to said memory, said processor configured to implement said computer-readable code, said computer-readable code configured to creating an evaluation model (column 6, lines 15-20) from at least one evaluation phone; creating a synthesizer model (column 3, lines 1-4) from at least one synthesizer.

7. Claim 56 is rejected under 35 U.S.C. 102(b) as being anticipated by Fette (4,707,858). Fette teaches communications system each end of which includes means for analyzing human speech and comparing each word to prestored words for word and speaker recognition, the message then being digitized along with characteristic properties of the speakers voice to form a signal for transmission having a rate of approximately 75 bits per second, transmitting the digitized message to a remote terminal which converts it to a spoken message in the synthesized voice of the original speaker (abstract).

Claim 56. An article of manufacture comprising: a computer-readable medium having computer-readable code means embodied thereon, the computer-readable program code means comprising a step to creating an evaluation model from at least one evaluation phone ("speech models"; column 1, lines 43-49); a step to creating a synthesizer model from at least one synthesizer phone (column 3, lines 1-4).

8. Claims 24, 52, 53, 57 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,185,530 Ittycheriah et al. (hereafter Ittycheriah). Ittycheriah discloses a method of determining potential acoustic confusion between at least one new word and at least a portion of existing words (abstract).

Claim 24. A method comprising the steps of: determining acoustic confusability (title) and for each of a plurality of word pairs (columns 2-3, lines 65-67 and 1-5, respectively); and; determining a metric (column 10, lines 29-31) by using the acoustic confusabilities, wherein step (b) further comprises the step of determining an acoustic perplexity (perplexity synonym for confusing; column 7, lines 50-57) by using the confusabilities.

Claim 52. An apparatus comprising: a memory (column 6, lines 45-60) that stores computer-readable code; and a processor operatively coupled to said memory (column 6, lines 45-60), said processor configured to implement said computer-readable code, (inherent since all computer must have memory platform for the code; column 13, lines

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24-35) said computer-readable code configured to: a) determine acoustic confusability for each of a plurality of word pairs (columns 2-3, lines 65-67 and 1-5, respectively); and b) determine a metric by using the acoustic confusabilities (title).

Claim 53. The apparatus of claim 52, wherein the computer-readable code is further configured, (inherent; column 13, lines 24-35) when performing step (b), to determine an acoustic perplexity (perplexity synonym for confusing; column 7, lines 50-57) by using the confusabilities.

Claim 57. The apparatus of claim 52, wherein the computer-readable code means embodied thereon, the computer-readable program code means comprising (inherent since all computer must have memory platform for the code; column 13, lines 24-35): a step to determine acoustic confusability for each of a plurality of word pairs (columns 2-3, lines 65-67 and 1-5, respectively); and (b), a step to determine a metric (perplexity synonym for confusing; column 7, lines 50-57) by using the confusabilities.

Claim 58. The article of manufacture of claim 57, wherein the computer-readable program (inherent since all computer must have memory platform for the code; column 13, lines 24-35) code means further comprises, when performing step (b), a step to determine an acoustic perplexity (perplexity synonym for confusing; column 7, lines 50-57) by using the confusabilities.

***Allowable Subject Matter***

9. Claims 15-23, 46-50, 55 and 60 are allowed.

10. Claims 2-14, 26-45, 54 and 59 are objected to since the independent claim is rejected; however, rejections to 24 would be overcome if claims 26 and 2 merged into claims 24 and 1 respectively; likewise to merging claim 54 into claim 52 and claim 59 into 57.

11. Claims 2-14, 26-45, 54 and 59 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

13. The following is an examiner's statement of reasons for allowance:

While US Patent 5,790,754 teaches an apparatus comprising: a memory that stores computer-readable code; and a processor operatively coupled to said memory, said processor configured to implement said computer-readable code, said computer-readable code configured to: determining a matrix from the evaluation and synthesizer models (claim 55); US Patent 5,806,029 teaches determining acoustic confusability of the first word and the second word by using the matrix, said matrix configured for speech recognition (claim 15); a method for determining acoustic confusability of a word pair, the method comprising the steps of (claim 46); an article of manufacture for

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determining acoustic confusability of a word pair, the article of manufacture comprising:  
a computer-readable medium having computer-readable code means embodied thereon, the computer-readable program code means comprising (claim 60); US Patent 4,707,858 teaches wherein the at least one evaluation phone comprises a first plurality of evaluation phones, the at least one synthesizer phone comprises a first plurality of synthesizer phones (claim 2), none of these references, taken either alone or in combination, with the prior art of record disclose a word alignment including:

*(claim 2) "creating a new matrix by subtracting the matrix from an identity matrix; creating an intermediate matrix comprising the new matrix and a second identity matrix; determining a first set of specific elements of the intermediate matrix; and determining acoustic confusability from one of the specific elements" (\* if this claim was merged into claim 1)*

*(claim 15) "A method comprising the steps of : creating an evaluation model from a plurality of evaluation phones, each of the phones corresponding to a first word; creating a synthesizer from a plurality of synthesizer phones, each of the phones corresponding to a second word; creating a product machine from the evaluation model and synthesizer model, the product machine comprising a plurality of transmissions and a plurality of states; determining a matrix from the product machine;"*



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(claim 26) performing steps of (a) and (b) to determine an acoustic perplexity of a base bigram language model; performing steps (a) and (b) to determine an acoustic perplexity of an augmented language model; and determining gain comprising a logarithm of a fraction determined by dividing the acoustic perplexity of the augmented language model by the acoustic perplexity of the base bigram language model (***\* if this claim was merged into claim 24***)

*(claim 46) "determining an edit distance between each word pair and an associated alignment; assigning acoustic distance to each aligned phoneme pair; and determining an acoustic confusability by summing acoustic distances"*

*(claim 55) "determine an edit distance between each word pair and an associated alignment; assign acoustic distance to each aligned phoneme pair; and determine an acoustic confusability by summing said acoustic distances"*

*(claim 60) "determine an edit distance between each word pair and an associated alignment; assign acoustic distances to each aligned phoneme pair; and determine an acoustic confusability by summing said acoustic distances."*

While none of these references, taken either alone or in combination with the prior art of record disclose word pair alignment including: edit distance, in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicants' invention defines over the prior art of record.

***Section II: Response to Applicants' Arguments (Last Office Action)***

***Formal Objections***

14. Applicants are thanked for addressing this issue. Objection is withdrawn based from the last office action; however new matters are pending.

***101***

15. Applicants are thanked for addressing this issue. Rejection is withdrawn.

***102(e)***

16. Applicant's arguments, see page 14, filed 12/05/05, with respect to the rejection(s) of claim 24 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Ittycheriah et al..

***Citation to Relevant Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent 4,433,210: teaches a phoneme-based speech synthesizer that is particularly adapted for implementation on a single integrated circuit chip.

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***Correspondence Information***

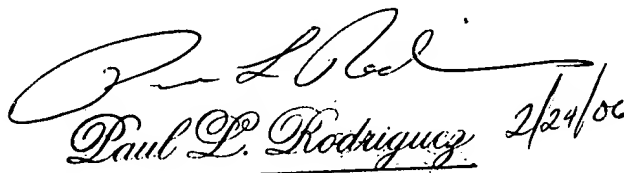
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. Leo Picard ((571) 272-3749). The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

February 9, 2006

TS

  
Paul L. Rodriguez 2/24/06  
Primary Examiner  
Art Unit 2125